

LOENCO inc*Advanced Instruments for Science***MULTI-PORT INSTRUMENT SWITCH VALVES****DESCRIPTION**

LOENCO, Inc. has developed two standard linear "O"-ring valves to solve switching applications for analytical instruments and for other control applications where a large number of ports are required. The valves are designed with extremely low dead volumes between ports so that they can be most useful in those switching applications requiring low dead volumes, such as gas chromatograph column switch valves, gas sample valves, etc. The valves are absolutely tight unless the "O"-rings become damaged.

MODEL L-206

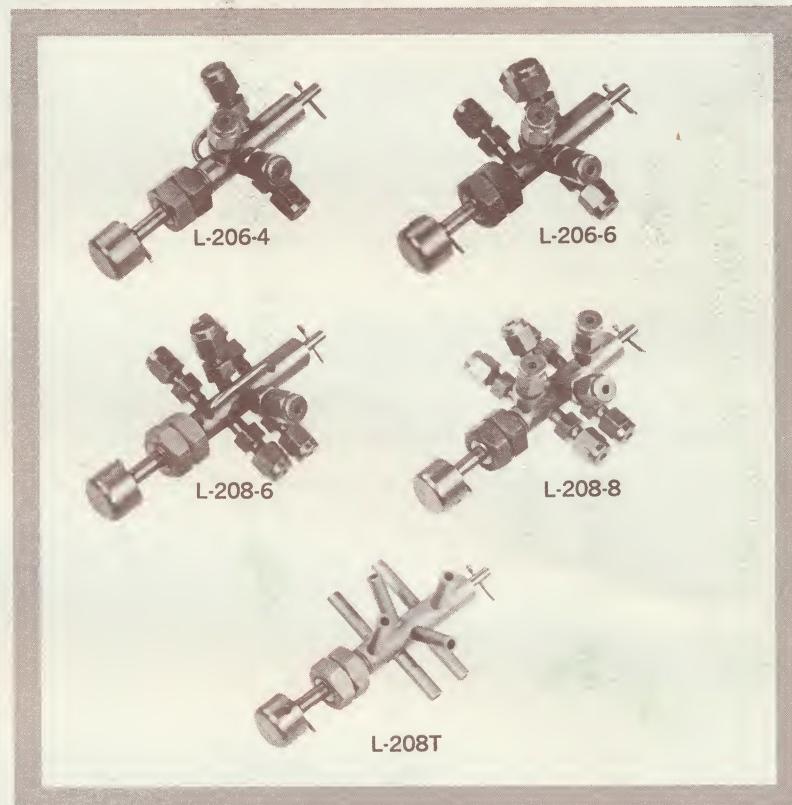
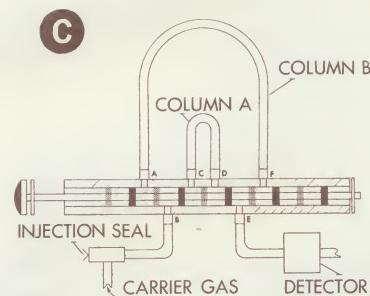
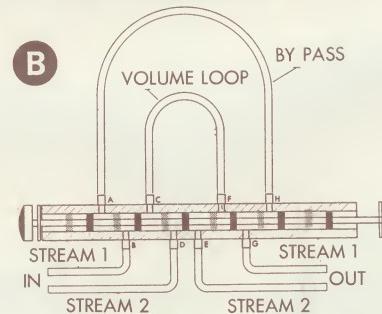
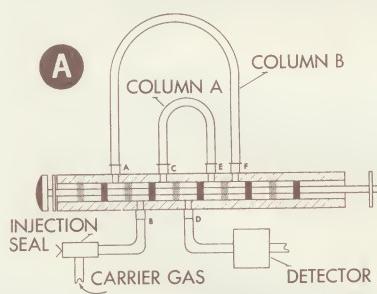
The Model L-206 is a six-port valve with either four or six Swagelok® tube-fitting connections. The four connection design, L-206-4, has two of the six-ports interconnected. The six connection design, L-206-6, has a tube-fitting for each port and offers a greater choice of porting schemes. Typical application diagrams are given below.

MODEL L-208

The Model L-208 is an eight-port valve with either six or eight Swagelok® tube-fitting connections. The six connection design, L-208-6, has two of the eight ports interconnected by a jumper tube. The eight-port connection design, L-208-8, has a tube-fitting for each port which widens the range of application. Typical application diagrams are shown below.

MODELS L-206T AND L-208T

Only two types of valves, a six-port, six connection and an eight-port, eight connection, are available in this series. These valves have tube connections to the valve body rather than the Swagelok® fittings used in the other models. They are particularly useful when a welded installation is required to insure an absolutely leak tight system. The connections are one inch long and are designed for use with $\frac{1}{8}$ " OD tubing. All other specifications are the same as for the regular L-206 and L-208 Series valves.

**APPLICATIONS**

■ "O"-ring arrangement with valve in "in" position.

■ "O"-ring arrangement with valve in "out" position.

A—The above arrangement allows column A to have a flow reversal and permits either a jumper or an additional column to be connected between ports A and F. If a jumper connects ports C and E, column B may be switched in or out of the flow system. If the system resistance must be the same in either valve position, a variable restriction may be installed in the by-pass line for matching flow resistance.

B—Introduction of a reproducible volume of one fluid stream into another fluid stream.

C—Two column switching. One column or other.

Write for Data Sheet LOE-17 for additional application suggestions and diagrams.

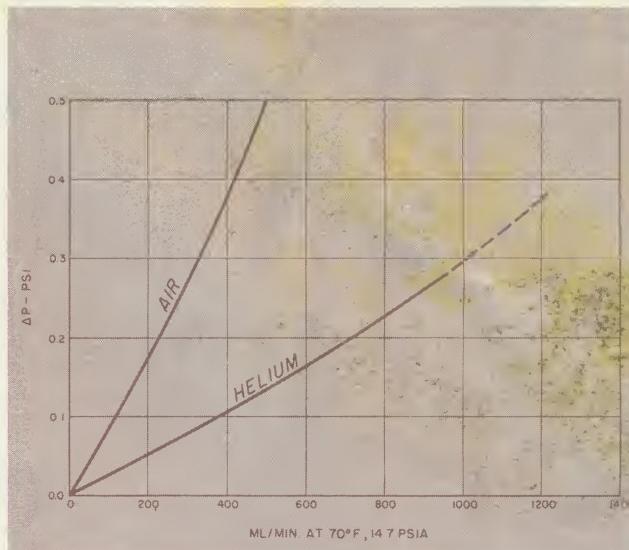
FLOW RESISTANCE

The linear "O"-ring valves are designed for very low dead volumes. The port diameter is approximately 0.040" so that small pieces of foreign material do not easily clog the valve. Typical flow resistance between any two ports is shown by Figure 1. Curves for both helium and air are given.

MATERIALS AND CONNECTIONS

Bodies, stems and fittings are 18-8 stainless steel. The "O"-rings are "Viton A" Fluorocarbon elastomer. Buna-N "O"-rings may be used for lower temperatures.

Valve connections are $\frac{1}{8}$ " O.D. Swagelok® tubing fittings.



OPERATING TEMPERATURES

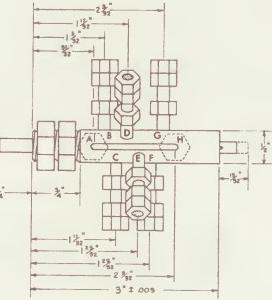
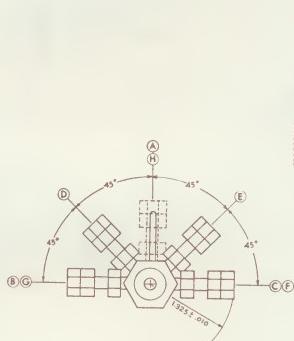
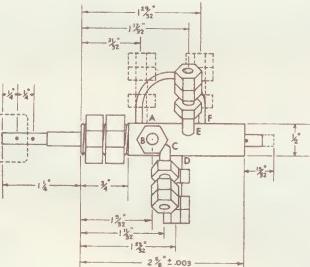
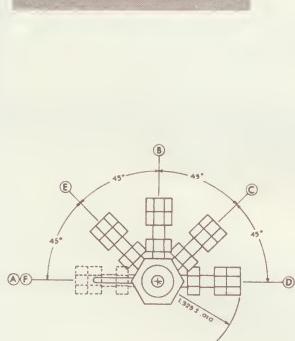
The valves using "Viton A" "O"-rings may be operated for extended periods at temperatures well above 100°C. A maximum operating temperature of 160°C is permissible for short periods of time. Operating experience indicates that "Viton A" will take a significant permanent set so as to cause leakage if the temperature is held above 170°C for periods of a few days. In many cases, "O"-ring life of a few days at high temperatures is satisfactory because replacement is quite simple.

MOUNTING AND ASSEMBLY

The valves are provided with body nuts for panel-mounting or for bracket-mounting, and will mount through a $\frac{1}{16}$ " diameter panel hole. They may be used with panels up to $\frac{1}{8}$ " thick with the standard nuts supplied.

The valves are constructed for easy assembly and for ease of maintenance. The stem is held in place by stainless steel cotter pins rather than by such devices as split rings in order that the stems may be removed from tight locations where special tools cannot be manipulated. Removing one cotter pin allows the stem to be pulled from the valve. The "O"-rings can be easily inspected or replaced by removing the stem. If the valves are mounted within an oven, a push rod of $\frac{1}{4}$ " OD tubing, having an 0.028" wall, may be cotter-pinned to the stem using the forward cotter pin hole.

DIMENSIONS



L-206

L-208

Figures 2 and 3 are outline-dimension drawings for the L-206 and L-208 series. Adequate additional space must be provided for the $\frac{1}{8}$ " OD connection tubing.

[®]Registered Trademark Crawford Fitting Co.



2092 North Lincoln Avenue • Altadena, California • 213-681-3539 • 213-794-1167

PRICE LIST

September 1, 1964

MULTI-PORT SWITCH VALVES AND OPERATORS

CATALOG NUMBER	DESCRIPTION	PRICE
----------------	-------------	-------

VALVES WITH VITON A "O"-RINGS

L-206-4V	6-port, 4 connections (Swagelok)	\$70.00
L-206-6V	6-port, 6 connections (Swagelok)	80.00
L-208-6V	8-port, 6 connections (Swagelok)	115.00
L-208-8V	8-port, 8 connections (Swagelok)	125.00
L-208T-6V	6-port, 6 connections (Tubing)	75.00
L-208T-8V	8-port, 8 connections (Tubing)	120.00

VALVES WITH BUNA-N "O"-RINGS

L-206-4B	6-port, 4 connections (Swagelok)	65.00
L-206-6B	6-port, 6 connections (Swagelok)	75.00
L-208-6B	8-port, 6 connections (Swagelok)	110.00
L-208-8B	8-port, 8 connections (Swagelok)	120.00
L-208T-6B	6-port, 6 connections (Tubing)	70.00
L-208T-8B	8-port, 8 connections (Tubing)	115.00

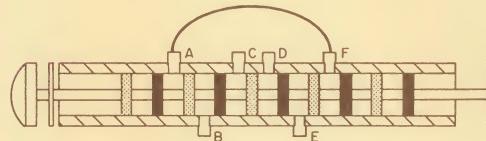
NOTES: (1) "O"-ring replacement tool included with each valve order.
(2) For trial port arrangements, see schematic drawings below.

SPARE AND REPLACEMENT PARTS

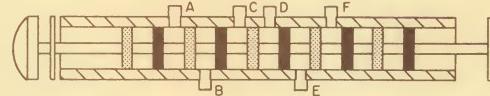
208-12	Right angle mounting bracket.	2.00
208-13B	Spare set Buna-N "O"-rings.	3.00
208-13V	Spare set Viton A "O-rings.	9.00
208-15	Stem knob.	1.00

VALVE OPERATORS

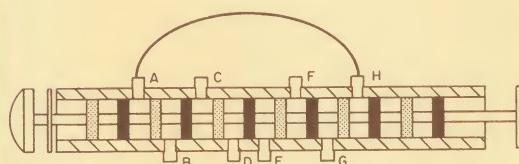
LVO-200A	Air cylinder operator with 115 volt, 60 cycle A.C. solenoid pilot. Short couple mount for ambient valve temperatures.	150.00
LVO-200HT	Air cylinder operator with 115 volt, 60 cycle A.C. solenoid pilot. Special high temperature coupling for operating valve at elevated temperatures.	160.00
LVO-201A	Electric operator with 115 volt, 60 cycle motor. Short coupled for ambient valve temperatures.	155.00
LVO-201HT	Electric operator with 115 volt, 60 cycle A.C. motor. Special coupling for operating valve at elevated temperatures.	165.00



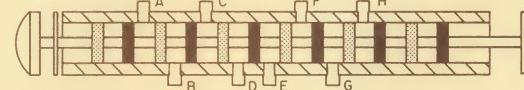
L-206-4



L-206-6



L-208-6



L-208-8

| POSITION IN

| POSITION OUT

Minimum order \$10.00
All prices F.O.B. Altadena, California, and do not include any taxes. Subject to change without notice.



Advanced Instruments for Science

2092 North Lincoln Avenue • Altadena, California • 213-681-3539 • 213-794-1167